

REMARKS

1. Rejections

Claim 5 stands rejected under 35 U.S.C. § 112, ¶2, as allegedly indefinite. Claims 1 and 2 stand rejected under 35 U.S.C. § 102(b), as allegedly clearly anticipated by U.S. Patent No. 5,675,474 to Nagase *et al.* (“Nagase”). Moreover, claims 1-6 stand rejected under 35 U.S.C. § 102(b), as allegedly clearly anticipated by Japanese Patent Publication No. JP-A-7-280484 (“JP-‘484”). Applicants respectfully disagree.

2. 35 U.S.C. § 112, ¶2

Claim 5 stands rejected as allegedly indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Applicants have amended original claim 5 in order to describe that the inner fin is brazed to an inner surface of said heat transfer tube. Moreover, claim 5 depends from independent claim 3, which describes that an inner fin is provided in each heat transfer tube. The Office Action alleges that claim 5 is in conflict with claim 3. Applicants respectfully traverse.

Specifically, in claim 3, an inner fin is provided in each heat transfer tube. As such, the inner fin is positioned within the heat transfer tube. In claim 5, the inner fin is brazed to an insider surface the heat transfer tube. As such, according to claim 5, the inner fin is both positioned within, and brazed to an inner surface of, the heat transfer tube. Thus, Applicants believe that amended claim 5 further limits claim 3, and is consistent with claim 3. Therefore, Applicants respectfully request that the Examiner withdraw the indefiniteness rejection of claim 5.

3. 35 U.S.C. § 102(b)

a. JP-‘484

Claims 1-6 stand rejected as allegedly clearly anticipated by JP-‘484. “A claim is anticipated if and only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” MPEP 2131. The Office Action alleges that JP-‘484 describes each and every element as set forth in claims 1-6. Applicants respectfully disagree.

Specifically, Applicants’ claims 1 and 3 describe a fin for a heat exchanger comprising a plurality of waving strips, in which “adjacent waving strips are connected at connecting portions between said first flat portions of said adjacent waving strips and between

said second flat portions of said adjacent waving strips, [wherein] a length (T) of each connecting portion in said longitudinal direction of each waving strip is less than or equal to about a thickness (t) of a plate forming each waving strip." (Emphasis added.) Moreover, as described in Applicants' specification, a rolling process may be employed to manufacture Applicants' claimed fin because the connecting portion (T) is less than or equal to the plate thickness (t). In contrast, when the connecting length (T) is greater than the plate thickness (t), even if the plate is forcibly bent, the waving strips will become deformed during the manufacturing process. See, e.g., Appl'n, Page 9, Lines 27-30. As such, Applicants' claimed invention requires that the connecting length (T) be less than or equal to about the plate thickness (t).

In contrast, **Fig. 5** of JP-'484 is addressed in Applicants' Background of the Invention Section, and corresponds to Applicants' **Fig. 13**. See, e.g., Appl'n, Page 2, Line 10. JP-'484 describes a plurality of waving strips 102 and 103 which are arranged adjacent to, and longitudinally offset from, each other. Adjacent strips 102 and 103 are connected to each other at adjacent raised portions and adjacent depressed portions. Moreover, a connection length of these connections portions is about L/2, in which L is the length of each raised portion, and also is the length of each depressed portion. As such, the connection length of the connection portions described in JP-'484 is about 1/2 of the length of the raised portion, which is substantially greater than a thickness of the waving strips 102 and 103. (Emphasis added.) Moreover, because the connection portion is substantially greater than the thickness of the waving strips 102 and 103, the waving strips 102 and 103 cannot be formed by a rolling method without deforming the waving strips 102 and 103. Consequently, waving strips 102 and 103 must be formed by a die press fitting method. See, e.g., Appl'n, Page 2, Lines 8-31. Thus, JP-'484 fails at least to describe a fin for a heat exchanger comprising a plurality of waving strips, in which "adjacent waving strips are connected at connecting portions between said first flat portions of said adjacent waving strips and between said second flat portions of said adjacent waving strips, [wherein] a length (T) of each connecting portion in said longitudinal direction of each waving strip is less than or equal to about a thickness (t) of a plate forming each waving strip," as described in original claims 1 and 3. Therefore, Applicants respectfully request that the Examiner withdraw the anticipation rejections of claims 1 and 3 in view of JP-'484.

Claims 2 and 4-6 depend from original claims 1 and 3, respectively. Therefore, Applicants respectfully request that the Examiner also withdraw the anticipation rejections of claims 2 and 4-6 in view of JP-‘484.

b. Nagase

Claims 1 and 2 stand rejected as allegedly clearly anticipated by Nagase. “A claim is anticipated if and only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” MPEP 2131. The Office Action alleges that Nagase describes each and every element as set forth in claims 1-6. Applicants respectfully disagree.

As described above with respect to JP-‘484, Applicants’ claim 1 describes a fin for a heat exchanger comprising a plurality of waving strips, in which “adjacent waving strips are connected at connecting portions between said first flat portions of said adjacent waving strips and between said second flat portions of said adjacent waving strips, [wherein] a length (T) of each connecting portion in said longitudinal direction of each waving strip is less than or equal to about a thickness (t) of a plate forming each waving strip.” (Emphasis added.)

In contrast, and similar to JP-‘484, Fig. 7 of Nagase depicts a plurality of waving strips 121 which are arranged adjacent to, and longitudinally offset from, each other. Adjacent strips 121 are connected to each other at adjacent raised portions and adjacent depressed portions. Moreover, a connection length of these connections portions is about L/2, in which L is the length of each raised portion of strip 121, and also is the length of each depressed portion of strip 121. See, e.g., Nagase, Fig. 7. As such, the connection length of the connection portions depicted in Nagase is about 1/2 of the length of the raised portion, which is substantially greater than a thickness of the waving strips 121. (Emphasis added.) Thus, Nagase fails at least to describe a fin for a heat exchanger comprising a plurality of waving strips, in which “adjacent waving strips are connected at connecting portions between said first flat portions of said adjacent waving strips and between said second flat portions of said adjacent waving strips, [wherein] a length (T) of each connecting portion in said longitudinal direction of each waving strip is less than or equal to about a thickness (t) of a plate forming each waving strip,” as described in original claim 1. Therefore, Applicants respectfully request that the Examiner withdraw the anticipation rejections of claim 1 in view of Nagase.

Claims 2 depends from original claim 1. Therefore, Applicants respectfully request that the Examiner also withdraw the anticipation rejections of claim 2 in view of Nagase.

CONCLUSION

Applicants respectfully submit that this application is in condition for allowance, and such disposition is earnestly solicited. If the Examiner believes that an interview with Applicants' representatives, either in person or by telephone, would expedite prosecution of this application, we would welcome such an opportunity. Applicants believe that no fees are due as a result of this responsive amendment. Nevertheless, in the event of any variance between the fees determined by Applicants and those determined by the U.S. Patent and Trademark Office, please charge any such variance to the undersigned's Deposit Account No. 02-0375.

Respectfully submitted,

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Enclosure

MARKED-UP COPY OF AMENDMENTS TO THE CLAIMS
IN THE CLAIMS:

Please amend original claim 5, as follows:

5. (amended) The heat exchanger of claim 3, wherein said inner fin is brazed to [each adjacent] an inner surface of said heat transfer tube.